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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,685	02/03/2002	Aleksandar Susnjar		3106

30379 7590 05/19/2003

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EXAMINER

VERBRUGGE, KEVIN

ART UNIT	PAPER NUMBER
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2188

5

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/683,685

Applicant(s)

SUSNJAR, ALEKSANDAR

Examiner

Kevin Verbrugge

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 19 is/are rejected.
- 7) ☒ Claim(s) 14-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

In response to the email sent 3/21/02 regarding "How to send substitute drawings after initial electronic filing?", apparently the Applicant was able to learn how to submit the substitute drawings since the substitute drawings are now located in the case. They were received on 4/8/02 and are acceptable for examination purposes. Furthermore, regarding the P.S. in the email, the oath and declaration forms have both been received as well. The Examiner is not sure why the application number was rejected by PAIR as invalid. The Examiner is also not sure whether there are plans to release a version of PASAT for Office XP or Windows XP. These questions should be directed to the Patent Assistance Center at 800-786-9199.

Claim Objections

Claims 14-18 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 14-18 have not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,267,097 to Ogino et al., hereinafter simply Ogino.

Regarding claim 1, Ogino discloses an information transfer control system having rotary storage unit which uses a pseudo address mark. He teaches that his device performs the claimed operation of immediately fetching data after completing a seek operation in the abstract, at column 2, lines 64-68, at column 3, lines 18-20 and 62-66, and column 4, lines 15-22. He shows this operation in Figs. 2a-2j, for example.

Regarding claim 2, Ogino discloses simultaneous reads and writes on a plurality of disk surfaces as claimed as taught at column 3, lines 4-6 where he teaches that "data is read out at the same time from a plurality of tracks defined by a common cylinder on a plurality of disks". He further teaches this aspect of his device at column 3, lines 48-59.

Regarding claim 3, Ogino does not explicitly teach the claimed organization of data but it is inherent in his device since he teaches that plural heads write/read data at the same time. In this arrangement, where plural heads write/read at the same time, the data must be organized first by surfaces (since each head writes/reads a different surface), then by sectors (as the disks rotate, different sectors pass under the heads),

and then by cylinders (once a given track/cylinder has been written/read, the actuators must move the heads to a new cylinder).

Claims 2-6 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,546,499 to Challener et al., hereinafter simply Challener.

Regarding claim 2, Challener discloses a redundant array of inexpensive platters (RAIP). In his disclosure, he applies the known technology of RAID (redundant array of inexpensive disks) to a single disk drive having multiple platters (disks) within the disk drive unit. He specifically teaches that one embodiment of his device has plural platters and plural heads.

He shows a single disk drive with plural platters and plural heads in Figs. 2, 7, and 12. He teaches that the plural heads read (and by implication write also) in parallel at column 6, lines 10-15.

Regarding claim 3, Challener does not explicitly teach the claimed organization of data but it is inherent in his device since he teaches that plural heads write/read data at the same time. In this arrangement, where plural heads write/read at the same time, the data must be organized first by surfaces (since each head writes/reads a different surface), then by sectors (as the disks rotate, different sectors pass under the heads),

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and then by cylinders (once a given track/cylinder has been written/read, the actuators must move the heads to a new cylinder).

Regarding claims 4 and 6, Challenger discloses the claimed operation of storing additional control information (parity) along with the raw data.

Regarding claim 5, Challenger teaches striping sectors to a plurality of surfaces since he teaches that stripes are a "group of bits or bytes" at column 2, line 22 and at column 7, line 37.

Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,343,347 to Gilovich.

Gilovich discloses a disk drive system having more than one read/write head for every surface as claimed.

Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,858,040 to Hazebrouck.

Hazebrouck discloses a bimorph actuator for a disk drive and describes it at column 2, lines 18-48 and shows it primarily in Figs. 2A, 2B, and 2C.

Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,521,778 to Boutaghou et al., hereinafter simply Boutaghou.

Boutaghou discloses a disk drive with primary and secondary actuator drives and describes it in the abstract and shows it in Figs. 1-5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,546,499 to Challener et al., hereinafter simply Challener.

Challener does not teach that his device has a disk drive system interface and/or supported command/communication protocol capable of informing the host system of the error or failure condition handled by the device of claim 6 as claimed. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include such capability in Challener's device so that his system would enable the host/user to take appropriate action (replace the disk, etc.). Even though the parity data stored in Challener's device allows it to correct errors as they occur, the user should be notified of such corrections so as to gain some knowledge of the condition of the disk. As the errors in the disk become more frequent, they forecast the eventual failure of the disk drive which would create a loss of data, so some early warning of corrected errors would give the skilled artisan notice to consider the condition of the disk and time to replace it before it fails in such a way that the data is unrecoverable.

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,343,347 to Gilovich in view of U.S. Patent 6,546,499 to Challener et al., hereinafter simply Challener.

Regarding claim 9, Gilovich does not teach that his device has simultaneous reads and writes on plural surfaces.

Challener discloses a redundant array of inexpensive platters (RAIP). In his disclosure, he applies the known technology of RAID (redundant array of inexpensive

disks) to a single disk drive having multiple platters (disks) within the disk drive unit. He specifically teaches that one embodiment of his device has plural platters and plural heads.

He shows a single disk drive with plural platters and plural heads in Figs. 2, 7, and 12. He teaches that the plural heads read (and by implication write also) in parallel at column 6, lines 10-15.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement simultaneous reads and writes on plural surfaces in Gilovich's device because Challenger shows that it was known to do so and doing so would dramatically increase the data throughput.

Regarding claim 10, Gilovich does not disclose the claimed reorganization of data. However, It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gilovich's device to implement simultaneous reads and writes as Challenger does to increase data throughput.

Once the skilled artisan was motivated to implement simultaneous reads and writes from different surfaces, the data reorganization would accompany that since although Challenger does not explicitly teach the claimed organization of data, it is inherent in his device since he teaches that plural heads write/read data at the same time. In this arrangement, where plural heads write/read at the same time, the data must be organized first by surfaces (since each head writes/reads a different surface), then by sectors (as the disks rotate, different sectors pass under the heads), and then

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by cylinders (once a given track/cylinder has been written/read, the actuators must move the heads to a new cylinder).

Regarding claim 11, Gilovich does not disclose that his device stores additional control information along with the raw data.

However, Challenger discloses the claimed operation of storing additional control information (parity) along with the raw data.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the parity information of Challenger in Gilovich's device to improve reliability. Then, when a particular head or surface fails, the missing information could be easily reconstructed using the parity data.

Regarding claim 12, use Gilovich does not teach striping sectors.

Challenger teaches striping sectors to a plurality of surfaces since he teaches that stripes are a "group of bits or bytes" at column 2, line 22 and at column 7, line 37.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the striping of sectors in Gilovich's device to more easily accomplish the computation of parity data.

Regarding claim 13, use Gilovich does not teach that his device can handle the situation when one or more heads or head pairs fail.

Challener discloses a redundant array of inexpensive platters (RAIP) which can handle the failure of one or more heads or head pairs.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include Challener's RAIP system in Gilovich's device to make it more reliable in the case where one or more heads fail. Furthermore, the limitations of claims 9, 10, 11, and 12 are similarly obvious when one combines Challener with Gilovich for the reasons mentioned above in the grounds of rejection of those claims.

Conclusion

Any inquiry concerning this or an earlier communication from the Examiner should be directed to Primary Examiner Kevin Verbrugge by phone at (703) 308-6663.

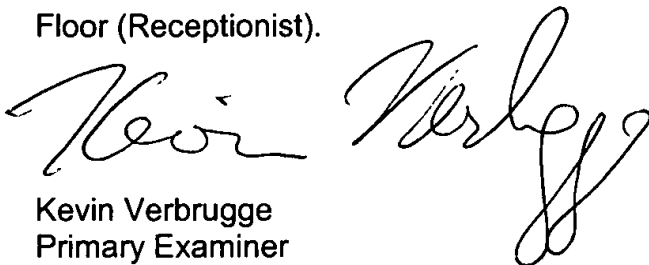
Any response to this action should be mailed to Commissioner for Patents, Washington, D.C. 20231 or faxed to

(703) 746-7238 After-final

(703) 746-7239 Official

(703) 746-7240 Non-Official/Draft

and labeled appropriately (After-final, Official, Non-Official/Draft). Hand-delivered responses should be brought to Crystal Park 2, 2121 Crystal Drive, Arlington, VA, 4th Floor (Receptionist).



Kevin Verbrugge
Primary Examiner
5/13/03